

AMENDMENTS TO THE SPECIFICATION:

Please amend the specification as follows:

Page 8, replace the paragraph beginning on line 7 with the following amended paragraph:

(8) the microporous polyolefin film according to the above described (1), (2) or (3), wherein the high temperature puncture strength is 0.005 N/ μ m or more;

Page 9, replace the paragraph beginning on line 17 with the following amended paragraph:

(16) the lithium-ion battery separator according to the above described (9), (10) or (11), wherein the high temperature puncture strength of the above described microporous polyolefin film is 0.005 N/ μ m or more; and

Page 12, replace the paragraph beginning on line 27 with the following amended paragraph:

To ~~decrease~~ increase the permeability and lower the shutdown temperature, at least one of the layers making up the laminate film is preferably a polyethylene single layer film. The term "polyethylene single layer film" herein used means a microporous film in which polyolefin used is polyethylene alone. Examples of polyethylene types used in such a lamina include: high density, intermediate density and low density types of polyethylene, and either one type of polyethylene alone or two or more types of polyethylene in the form of a blend can be used. Examples of polymerization catalysts applicable include, not limited to, Ziegler-Natta catalyst, Phillips catalyst and metallocene catalyst. From the viewpoint of film strength, high density polyethylene is preferably used. Different types of polymer can also be blended, as long as the

advantages of the present invention are not impaired. From the viewpoint of compatibility between film strength and high permeability, the viscosity average molecular weight of the polyethylene is preferably 100000 or more and 4000000 or less and more preferably 200000 or more and 3000000 or less.

Page 17, replace the paragraph beginning on line 7 with the following amended paragraph:

Heat treatment is performed by, for example, relaxing the shrinkage stress using a tenter in the temperature range of 100°C or higher to the melting point of polyethylene in order to reduce the shrinkage of a film (or membrane) under a high-temperature atmosphere.

Page 29, replace the paragraphs beginning on line 13 though page 31, line 4 with the following amended paragraphs:

Example 1

A microporous polyolefin film of 3-layer laminate film structure was produced in which the two surface layers were composed of 60 parts by weight of polypropylene (with a density of 0.90 and a viscosity average molecular weight of 300000), as homopolymer, and 40 parts by weight of high density polyethylene (with a density of 0.95 and a viscosity average molecular weight of 250000) and the intermediate layer was composed of 100 parts by weight of high density polyethylene (with a density of 0.95 and a viscosity average molecular weight of 250000). As an antioxidant, 0.3 parts by weight of tetrakis-(methylene-3-(3',5'-di-t-butyl-4'-hydroxyphenyl)propionate)methane was blended with the composition of each layer. Further, 3 parts by weight of bis(p-ethylbenzylidene)sorbitol was blended with the composition of the two surface layers.

The compositions were fed into the respective twin-screw extruders having a bore diameter of 25 mm and a L/D = 48 through a feeder. Then, 150 parts by weight of liquid paraffin (with a kinetic viscosity at 37.78°C of 75.90 cSt) was poured into the respective extruders with a side feed, each of the mixture was kneaded at 200°C and 200 rpm, and the kneaded material was extruded from a co-extrudable T die fixed at the tip of the extruder and immediately cooled and solidified with a casting roll having been cooled to 25°C to mold a sheet 1.5 mm thick. The sheet was stretched to 7- × 7-fold size with a simultaneous biaxial stretching machine at 124°C. The stretched film was then immersed in methylene chloride to extract and remove the liquid paraffin, dried, and heat treated at 120°C to obtain a microporous film. The physical properties of the resultant microporous film are shown in Table 1. The degree of blackening is shown in Table 3.

Example 2

A microporous film was produced in the same manner as in Example 1, provided that the two surface layers were composed of 80 parts by weight of polypropylene (with a density of 0.90 and a viscosity average molecular weight of 300000), as homopolymer, and 20 parts by weight of high density polyethylene (with a density of 0.95 and a viscosity average molecular weight of 250000). The physical properties of the resultant microporous film are shown in Table 1. The results of examining the degree of blackening are shown in Table ~~[[4]]~~3. And the measurements of the pore diameter of each layer are shown in Fig. 3.

Page 36, replace the paragraph beginning on line 16 with the following amended paragraph:

Comparative Example 5

A microporous film was produced in the same manner as in Example 1, provided that the two surface layers were composed of 100 parts by weight of polyethylene (with a density of 0.95 and a viscosity average molecular weight of 250000). The physical properties of the resultant microporous film are shown in Table 3. The resultant microporous film ruptured at high temperature puncture and did not have sufficient high temperature storage. The measurement of the degree of blackening is shown in Table **[[4]]3**, which indicates that the degree of blackening is much more than 5%.

Page 38, replace Table 2 with the following amended Table 2:

Table 2

	Surface layer composition	Percentage of PE (%)	Percentage of PP/PE layer thickness (%)	Thickness of entire film (μm)	Air permeability (sec/100 ml/20 μm)	Average pore diameter (μm)	Shutdown temperature at the time of high speed heat-up (°C)	Short-circuit temperature at the time of high speed heat-up (°C)	High temperature puncture strength (N/μm)	High temperature storage (%)
Example 9	PP/PE=80/20 PE=100	84	20	20	315	0.04	148	190	-	-
Comparative Example 1	PP/PE=20/80	92	32	19	467	0.05	145	175	0.003	68.2
Comparative Example 2	PP/PE=40/60	84	32	19	494	0.04	146	180	0.004	69.5
Comparative Example 3	PP/PE=80/20	40	74	19	1053	0.03	151	200	0.011	73.9
Comparative Example 4	PP=100	60	33	20	1165	0.03	153	200	0.013	74.4
Comparative Example 5	PE=100	100		18	348	0.05	144	150	Membrane rupture occurred.	66.8

